

APPENDIX IV

FRICTION OF GASES FLOWING THROUGH
BRICK
FLUES OR MAINS («

BY W. A. MOJAROW

IN the flow of gases beneath an inverted weir, or, as it may be designated, inverted flow, the stream of gas may or may not fill the flue or furnace to its full height; practically, it may be said that in those cases where the stream of gases does not touch the hearth or bottom of the flue, the depth or vertical thickness of the inverted stream will be given by the formula developed by M. J. Yesmann, Professor of Hydraulics at the Polytechnic Institute of Petrograd :

in which Q = the volume of gas flowing at the temperature t° ;

J_3 = the length of crest of the inverted weir, that is, the width of the furnace or flue;

A — SL coefficient which is not constant and varies from 2.97 to 3.62 according to h_t and B .

In order to arrive at the actual movement of the gases it is necessary to take account of the drop in pressure and, likewise, of the decrease in velocity which occurs at the different parts of the furnace or flue.

These losses are caused by:

1. Changes in the direction of flow;
 2. Changes in the cross-sectional area of the channel;
 3. Friction against the walls of the channel.
- Information regarding the first two losses and changes of

(1)

*Revue
de
la Sorie
tt
russe
de
M&tal
urgie, /
, pp.
835-
371
(1913}*

*.
Extrait
de
Revue
de
Metall
urgie,
XI bis,
p. 320,
mai
1914.*